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Regional
Forest Insects

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UNITED STATES DEPARTMENT OF AGRICULTURE
BUREAU OF ENTOMOLOGY
FOREST INSECT INVESTIGATIONS

January 16, 1931

Region 1.
ANNUAL FOREST INSECT STATUS REPORT

Season of 1930

By

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Coeur d'Alene, Idaho

Insect Control, D-1
(Annual Report)

January 16, 1931

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INTRODUCTION

The purpose of this report is to present a summary of the insect status reports submitted from the Ranger Districts of Region 1. This is the seventh year that these reports have been submitted, and a valuable record has been compiled from them. Not only has this material been summarized each year into a report of this character, but a card summary of the reports and a map file showing location of outbreaks are maintained at the Coeur d'Alene Station of the Bureau of Entomology, that is providing an excellent and valuable historical reference.

During the period these reports have been submitted, there has been a marked improvement in their character, indicating that the reporting officers are becoming more familiar with their problems. Though this improvement is very apparent in the 1930 reports, there are still improvements to be made. This is especially true in the recognition of what is called the endemic or normal infestation. It is feared that many rangers may be a trifle too free to consider the presence of a few trees as constituting only a normal infestation. Several reports were submitted, which only contained the information that the scattered infested trees observed along the trail were but a normal condition. Experience has taught us that until we know the actual status of con-

ditions throughout an area, the presence of successfully attacked trees, regardless of their number, must be taken as a tocsin indicating the need for a more thorough examination. The danger of such hasty decisions lies in the fact that serious destructive outbreaks develop from such apparent normal infestations in a very few years. Such outbreaks require not only large sums of money for suppression, but often prove to be very difficult to control. It is only from the prompt and accurate reporting of abnormal insect conditions within our forests, and the treatment of outbreaks while in their incipiency, that serious epidemics can be prevented. However, such reports, if they are to be of any value, must be based upon reliable and comprehensive data. The securing of the data necessary for the proper submission of these reports does not require special training, but it is necessary that the importance of the task be realized by the reporting officer, who should assume responsibility for the report. Some field data will be necessary for all infestations reported upon, which in many instances can be secured in a few hours. It must be born in mind that perhaps the most dangerous of all reports are those reporting a normal or endemic infestation.

SUMMARY OF RANGER REPORTS FOR 1930

Ranger reports were received from 176 areas, which is an increase of 27 over the previous season. Twenty-seven of these reports were negative in character and were not included within this report. Of the 149 reported insect infestations, 75 were considered as increas-

ing, 38 as decreasing, and 33 as being in a normal status. There were 36 recommendations for control, while in the other 113 areas control measures were not considered as being necessary. Of the 24 forests within the Region, 21 of them reported increasing bark-beetle infestation. The Absaroka reports decreasing outbreaks of the Douglas Fir and mountain pine beetles; the Cabinet has one normal infestation of the mountain pine beetle, while the Lewis and Clark has no infestations whatever.

SUMMARY OF DIFFERENT INSECTS REPORTED UPON

INSECT	Year	Increasing	Decreasing	Normal	Total
Mountain Pine Beetle	: 1930 :	60	: 24	: 14	: 97
<u>D. monticolae</u>	: 1929 :	45	: 14	: 23	: 82
	: 1928 :	33	: 13	: 10	: 56
Western Pine Beetle	: 1930 :	4	: 1	: 0	: 5
<u>D. brevicomis</u>	: 1929 :	0	: 3	: 4	: 7
	: 1928 :	5	: 4	: 2	: 11
Douglas Fir Beetle	: 1930 :	4	: 2	: 4	: 10
<u>D. pseudotsugae</u>	: 1929 :	2	: 1	: 2	: 5
	: 1928 :	5	: 4	: 2	: 11
Lodgepole Pine Beetle	: 1930 :	0	: 0	: 1	: 1
<u>D. murrayanae</u>	:	:	:	:	:
	:	:	:	:	:
Fir Beetle	: 1930 :	2	: 0	: 0	: 2
<u>Scolytus ventralis</u>	: 1929 :	1	: 0	: 0	: 1
(<u>Scolytus subscaber</u>)	: 1928 :	0	: 0	: 1	: 1
Oregon Pine Engraver	: 1930 :	1	: 2	: 1	: 3
<u>Ips oregoni</u>	: 1929 :	0	: 1	: 0	: 1
	: 1928 :	0	: 1	: 0	: 1
Balsam Beetle	: 1930 :	1	: 0	: 2	: 3
<u>Dryocoetes confusus</u>	:	:	:	:	:
	:	:	:	:	:
Spruce Budworm	: 1930 :	6	: 5	: 6	: 17
<u>Cacoecia fumiferana</u>	: 1929 :	4	: 9	: 3	: 16
	: 1928 :	11	: 12	: 4	: 27
Pine Butterfly	: 1930 :	1	: 0	: 0	: 1
<u>Neophasia menapia</u>	: 1929 :	1	: 0	: 0	: 1
	:	:	:	:	:
Gall aphis	: 1930 :	0	: 3	: 1	: 4
<u>Adelges colleyi</u>	: 1929 :	3	: 0	: 3	: 6
	: 1928 :	4	: 1	: 0	: 5
Needle Tyer	: 1930 :	0	: 1	: 0	: 1
<u>Eulia</u> sp.	: 1929 :	0	: 1	: 0	: 1
	: 1928 :	0	: 1	: 0	: 1
Douglas Fir Cone Moth	: 1930 :	0	: 0	: 1	: 1
<u>Zeiraphera diniana</u>	:	:	:	:	:
	:	:	:	:	:

During the past season there has been but a slight change in the number of mountain pine beetle outbreaks reported from white pine.

In 1928 there were 27 outbreaks of this character reported, 18 of which were increasing. In 1929 there were 40 reported with 24 being

considered as increasing, and in 1930 there were 42 reports received with 22 given as increasing. The Clearwater, Coeur d'Alene Pend-Oreille, Blackfeet, St. Joe, Cabinet, Flathead, Kootenai, and Kaniksu all report infestation of the mountain pine beetle in white pine. On the Coeur d'Alene, Kootenai, Kaniksu, and Pend Oreille National Forests serious infestations exist with severe losses resulting.

The present status of the mountain pine beetle in the lodgepole pine stands of the Region would seem to be even more serious than previously reported. In 1929 there were 36 outbreaks of this insect in lodgepole pine, 25 of which were considered as increasing in severity. In 1930 there were 55 infestations reported with 39 of them listed as increasing. The Clearwater, Nezperce, Abiaroka, Beartooth, Beaverhead, Bitterroot, Blackfeet, Deerlodge, Flathead, Gallatin, Helena, Kootenai, Madison, Missoula, and Lolo Forests all report outbreaks of the mountain pine beetle in lodgepole pine. New infestations were reported from the Nezperce, Beartooth, Beaverhead, Blackfeet, Deerlodge, Flathead, Gallatin, Helena, Kootenai, Madison, Missoula, and Lolo National Forests. These infestations are indeed serious and tend fair to destroy a large per cent of the lodgepole pine volume of the state of Montana, unless in some manner the destructiveness is checked. The situation within the lodgepole pine forests of central Idaho is equally as serious. This infestation has now spread throughout the Salmon, Challis, Payette, Idaho, and Weiser National Forests, where heavy losses are resulting. To the

south of Yellowstone Park, on the Targhee, Teton, and Wyoming National Forests of Region 4, an outbreak of this insect has been pending for the past four years. Every possible effort is being made, through the institution of artificial control measures, to prevent such an occurrence, for in the event of a serious epidemic the valuable aesthetic timber stands of the Yellowstone and commercial forests adjacent would be doomed.

Outbreaks of the Douglas Fir Beetle were again reported from the Absaroka, Blackfeet, and Bitterroot Forests, while reports of new outbreaks were received from the Blackfeet, Flathead, Kootenai, and Kaniksu National Forests. This insect is rapidly becoming prominent throughout the Douglas Fir forests of this Region and heavy losses are resulting. This insect is causing severe destruction within the scenic forests of the Glacier National Park, and in October, 1930, an effort was made through the institution of artificial control measures to stop further destruction of this insect in the vicinity of McDonald Lake.

The reports covering the spruce budworm outbreaks are about the same as in 1929. In that year 16 reports covering outbreaks of this insect were received with four of them considered as increasing. In 1930 there were 17 reports received with 5 listed as increasing. In 1928 there were 27 reports received and 11 of them considered as increasing, indicating that there has been a rather marked decline in the epidemics of this insect. Outbreaks of this insect are present on the Clearwater, Coeur d'Alene, Nezperce, Selway, Lolo, and Helena

National Forests. Serious outbreaks of this insect are still present within the Cody Canyon of the Shoshone Forest in Wyoming, and in the lodgepole pine forests of the southwest corner of the Yellowstone Park, and portions of the Targhee Forest adjacent. From these reports it is evident that there are still some serious outbreaks of this insect existing within the forests of Idaho and Montana.

An increasing outbreak of the pine butterfly (Neophasia menapia) was again reported from the Nezperce forest. This insect is an important defoliator of yellow pine, and some few years ago was responsible for the destruction of a large volume of yellow pine in the vicinity of New Meadows, Idaho. It is possible that another destructive epidemic may be developing.

Though not within the forests of Region 1, a mention of the Douglas Fir Tussock moth would not seem to be out of place in this report. The outbreaks of this insect which occurred at Jarbridge, Nevada; New Meadows, Idaho; and Northport, Washington, have all been reduced through the activity of their parasites and predators. This insect is indeed a killer and rather large areas of timber were destroyed during the few years that these outbreaks existed.

Recommendations were made for the institution of artificial control for mountain pine beetle outbreaks in white pine from the Clearwater, Coeur d'Alene, Pend Oreille, St. Joe, Kootenai, Kaniksu, and Lolo National Forests, while the Nezperce, Beaverhead, Gallatin, and Missoula Forests recommended control for outbreaks of this insect in lodgepole pine. The Selway recommended control for outbreaks of

the western pine beetle in yellow pine. A recommendation for the institution of control measures against an outbreak of the Douglas Fir Beetle was received from the Blackfeet forest, and Helena recommended control measures for an outbreak of the spruce budworm. No other recommendations for control were received.

1930 FIELD SEASON

Beaverhead National Forest

Though there have been no control measures conducted on the Beaverhead Forest since 1928, the entire forest is covered each year by an extensive insect survey conducted by the Bureau of Entomology. The purpose of this project is to secure more information relative to the spread and rate of increase that can be expected from infestations of this character. The three years' data that has been secured from this survey shows that the infestation has spread throughout the entire forest, and that in 1930 there were 3,850,000 trees attacked as against 2,506,000 in 1929, and 543,000 in 1928. This project will be continued as long as further information can be secured.

Kootenai National Forest

During the fall of 1929, and spring of 1930, control measures were conducted upon six areas of white pine within the Kootenai National Forest against infestation of the mountain pine beetle. Approximately 4,303 trees were treated at a total cost of \$20,640. During the past season a survey of these areas, as well as all other white pine stands of the forest, was conducted by local forest officers. Data secured

during this survey indicates that an average reduction of 82% was secured on all areas covered by control, but outbreaks of the mountain pine beetle were found in practically all of the white pine stands of the forest.

Coeur d'Alene National Forest

Following the survey of 1929, which indicated the presence of a serious outbreak of the mountain pine beetle throughout the white pine stand of the forest, the largest barkbeetle control project ever undertaken was instituted on the Coeur d'Alene in April, 1930. Approximately 23,000 trees were treated at a cost of \$123,000. This project started early in April and closed on June 20. At the height of the project 600 men were located in twenty camps scattered throughout the forest. The difficulties of transportation, equipment, weather, and most of all, the lack of trained personnel, that confronted the officers in charge of this project will be apparent to all. During the past summer a survey of the Coeur d'Alene was made for the purpose of securing data relative to the results secured from control, and the areas where follow-up maintenance control will be needed in 1931. Though the results secured were not as great as had been hoped for, a reduction of 68% was secured on all areas covered by control, which when the magnitude of the task is considered, is very satisfactory. Approximately \$15,000 were spent in fall control during October, 1930, and some \$34,000 will be needed for the spring of 1931.

Clearwater National Forest

Following a rather severe blow down of white pine near the Musselshell Ranger Station, an outbreak of the mountain pine beetle developed, which was placed under control in the spring of 1930. Some 575 trees were treated at a cost of \$3,450. A survey of this area during the past summer would seem to indicate that a very satisfactory reduction in the infestation of at least 90% was secured.

Madison National Forest

The abnormal occurrence of red tops within the lodgepole pine forests of the Madison National Forest, which were observed during the summer, called for a more intensive survey during the month of October. As a result of this survey rather serious infestations of the mountain pine beetle were found in that portion of the forest facing the Beaverhead, which would seem to indicate that the insects had spread across the hoped-for-barrier of timberless land from the Beaverhead into the Madison. Data secured from this survey would indicate that there are some 26,000 infested trees on this portion of the forest, though some of the areas are not considered as being serious at this time.

Glacier National Park

Control measures were instituted within the Glacier National Park during May, 1930, for the reduction of an outbreak of the mountain pine beetle in white pine. This project was very successful and a reduction of 93% followed the institution of control. The few trees remaining upon the area will be treated in the spring of 1931. In

October, control measures were instituted for the suppression of an outbreak of the Douglas Fir beetle in the Douglas Fir stand at the head of McDonald Lake. The results of this project will not be available until next season.

Yellowstone National Park

During the past season it was found that the outbreak of the mountain pine beetle within the lodgepole pine stands of the Targhee National Forest had spread into the southwest corner of the Yellowstone Park. The extent of this infestation is not very accurately known at this time, though it is feared that it may prove to be more extensive than is anticipated.

Region Four

Though the Targhee, Teton, Wyoming, and Caribou forests are not in Region 1, they are directly connected with the Yellowstone Project of which the Madison Forest now becomes a part, so it would seem well to include a brief statement of past seasons activities. On these four forests approximately 57,000 lodgepole pine trees were treated at a total cost of \$58,000. The trees were treated by spraying oil upon the lower portion and then burning. A survey of these forests during the past seasons indicates that a reduction in the infestation of 70% followed the institution of control. Follow-up or maintenance control will be conducted in 1931 with the intention of making as near a 100% cleanup of this infestation as possible.

SUMMARY OF INVESTIGATION CONDUCTED BY BUREAU OF ENTOMOLOGY

Due to the economic importance of the barkbeetle problems of this region, practically the entire investigative force of the Forest

Insect Field Station at Coeur d'Alene, Idaho, is concentrated upon a study of the mountain pine beetle. Every possible effort is being made to develop a more economical and effective method of controlling epidemics of this insect in white pine and lodgepole pine, or to improve those methods in use at this time. Studies of control projects have also been conducted for the purpose of improving the administration of present methods. Many leads, including the injection of poisons into infested trees, have been thoroughly tested. An intensive study has been made of the parasites and predacious insects found in association with the mountain pine beetle, in the hopes that control measures can be developed or administrated in order to take full advantage of the benefits to be derived from this agency. The parasites and predators of the Douglas Fir Tussock moth have also been intensively studied, and during the past season a colony of a large predacious beetle (Calosoma sycophanta) were secured from the eastern United States and liberated at Northport, Washington. These insects are voracious feeders in both the larval and adult stages on all leaf eating caterpillars, and it is hoped that this colony will become established and assist in controlling future outbreaks of this insect. A study of the seasonal history of the Douglas Fir Beetle was instituted during the past season for the purpose of developing more effective methods of control than those that are now in use. Other studies such as the interrelation of fire injured yellow pine to subsequent insect attack, mortality of yellow pine defoliated by the pine butterfly, seasonal history studies of the spruce budworm, with experimental spraying, have been carried on during the

past season.

CONTROL PLANS FOR THE 1931 SEASON

Though their institution depends upon the necessary appropriation of funds the following control projects have been recommended for the spring of 1931.

Mountain Pine Beetle--White pine

Coeur d'Alene National Forest	34,000
Kootenai National Forest	23,000
Yellowstone National Park	5,000
Glacier National Park	1,500

Mountain Pine Beetle--Lodgepole pine

Madison National Forest R-1	30,000
Targhee, Teton, Wyoming and Caribou National Forest R-4	80,000

CONCLUSIONS

An analysis of all available sources of information relative to the status of insect conditions within the Region would seem to indicate that there has been little if any cessation in the seriousness of the barkbeetle epidemics which have confronted us for the past few years. It is impossible to attempt a forecast of the future of these epidemics as many of them will undoubtedly continue for a number of years, while others may be relatively short lived. The institution of control measures in many of the areas has been re-

sponsible for decided reductions in the infestation upon those areas treated. However, outbreaks exist that have reached such a magnitude that the thoughts of artificial control are prohibitive. This applies especially to the outbreaks of the mountain pine beetle within the lodgepole pine forests of Idaho and Montana.

The ranger reports show a marked improvement over those submitted in the past. There seems to be less confusion in regard to the insects upon which the reports are based, and it is rather evident that more field work is being given to this problem. However, there seems to be a tendency to confine the report to the execution of the form which has been provided. In studying these reports we should like to have more of the reporting officers' personal reaction to the situation. Quite often the space provided for remarks is totally ignored, while in other instances, extremely worth while information is given. We would like to have the backs of these forms utilized for more remarks.

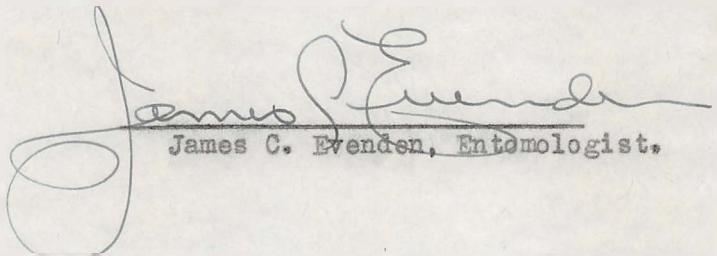
A great deal of interesting and worth while information was given by some of the Supervisors in a summary of the ranger reports. This is an excellent practice and it is trusted that next year we will have more of these summaries.

The place of insects in our program of forest protection is now more fully realized than ever before. The solution of this problem, as with other phases of forest protection, is one of preventing epidemics rather than suppressing them. The control of well established outbreaks often proves to be an expensive and sometimes uncertain procedure. To prevent their occurrence, outbreaks must be recognized in

their incipiency. Control measures instituted against situations of this character not only result in a far less expensive project, but are more often productive of efficient results than where epidemics are combated. To prevent the development of epidemics prompt recognition and action is necessary. To secure this information it is necessary for the observing forester to use the discolored foliage of the insect killed trees as the first indication of an outbreak. When one is familiar with an area, and all timber stands should be viewed annually, if efficient reports are to be submitted, it is not difficult to determine an increase in the number of red-topped trees. It is true that when red tops are used as a guide to the presence of an infestation, the observer is one year behind the actual status, for by the time the foliage has changed color, the insects have either left the trees or it is too late to institute control. To secure data relative to the existing status of the infestation, which has been indicated by the presence of red tops, the best results are obtained from the use of sample strips, one chain in width, which are run through the infested area. These strips are run upon a general compass bearing in order that the sample secured will be a fair one, and the distanced covered is paced. It is then possible to reduce the number of infested trees that are encountered upon this strip to an acreage basis, which can then be applied to the entire area covered. The number of red tops encountered can also be counted and compared to the newly infested trees in order to secure a percentage of increase or decrease. During the present season a circular outlining

in more detail this method of insect survey will be prepared and distributed to all forests. The importance of the "lowly" bug must not be minimized. It is to the ranger that we who are charged with the responsibility of preventing the occurrence of insect epidemics must turn for our first information as to the existence of abnormal conditions.

Respectfully submitted,



James C. Evenden
James C. Evenden, Entomologist.

Approved

1-20-31

Elmer Koch
Asst. Regional Forester

SUMMARY TABULATIONS OF RANGER REPORTS

Forest Area	Insect	Host	Increasing: First		Control	
			Decreasing	Reported	Decreasing	Recommended
<u>CLEARWATER N.F.</u>						
Musselshell District	MPB	WP	Decreasing	1929	Yes	
Musselshell District	S. Budworm	WP ES AF	Decreasing	1928	No	
Oxford District	No Infestations Reported					
Canyon District	MPB	WP LP	Decreasing	1929	No	
Sheep Mt. Territory	S. Budworm	?	Decreasing	1929	No	
Chamberlain District	S. Budworm					
Cougar Creek Ridge	S. Budworm	WP WP	Increasing	1930	No	
Fix Bar	MPB	WP	Decreasing	1930	?	
North Fork Area	MPB	WP	Decreasing	1927	?	
Kelly Creek District	MPB					
Moose City Basin	MPB		Increasing	1930	Investigation	
Cook Mountain	No detailed information					
<u>COEUR D'ALENE N.F.</u>						
Little North Fork Drainage	MPB	WP	Increasing	1925	Yes, continued	
	S. Budworm	WP	Increasing	?	No?	
Little North Fork Dist.	DF Beetle	DF	Increasing	1930	No	
Lakes District	Hayden Cr. Fortier Cr. and MPB					
other Crs. in District	MPB		Decreasing	1930?	No	
Shoshone District	Haystack Creek					
Burnt Cabin Sale Area	MPB	WP	Decreasing	1930	No	
Grizzly Mt. District	MPB	WP	Increasing	1926	No	
Can Cr. & East Fork	MPB	WP	Increasing	1925	Yes on West Y.	
Lower North Fork	MPB	WP	Increasing	1928	Yes, Copper Cr.	
Forks District	Forks District					
Callis, Stewart & Potter Crs.	MPB	WP	Increasing	1929?	Yes, continued	
Big Elk Creek	MPB	WP	Increasing	1925?	Yes	
Snow, North & Spruce Crs.	MPB	WP	Increasing	1930?	Yes	
Beaver Creek	MPB	WP	Increasing	1930	Yes	
Pottsville	MPB	WP	Increasing	1930	Yes	
<u>NEZPERCE N.F.</u>						
Bargamin Cr. Moose Cr.	S. Budworm					
Meadow Cr. Otterson Cr.	MPB	DF WP	Stationary	1924	Areas should be Investigated	
Lower Big Mallard Cr.	MPB	LP	Increasing	1930		
Red River	Dixie District					
	MPB	LP	Increasing	1930	Yes	
South Fork Drainage	S. Budworm	WP	Increasing	1924	?	
Elk City District	MPB	LP	Increasing	1930	Yes	
Paradise District	S. Budworm	WP	Increasing	1930	Yes	
Five Mile Camp Ground	Nezperce Peak					
Upper Indian & Cayuse Crs.	MPB	LP	Increasing	1930	Yes	

Forest Area	Inset	Host	Increasing	First	Control
			: Decreasing	: Reported	: Recommended
<u>NEZPERCE N.F. con't.</u>					
Bitterroot	Pine Butterfly	YP	Increasing	1927	No
Spot Mountain	MPB	LP	Increasing	1930	Yes
Waugh & Bakin Ridge	MPB	LP WBP	Increasing	1930?	?
Dwyer, Little Squaw and Eagle Creeks	MPB	LP WBP	Increasing	1930?	?
Hell's Half Acre	MPB	LP	Increasing	1926	?
Upper Selway Drainage	MPB	LP	Increasing	1930?	?
Dennis Mountain	MPB	LP	Increasing	1930	?
McGruder Cr. Drainage	MPB	LP	Increasing	1930	?

PINE OREILLE N.F.

Clark Fork District	No infestation reported for 1930				
Lake District	No infestation reported for 1930				
Deer, Skin & Curly Crs.	MPB	WP	Decreasing	1930	For Deer Cr.
Moyie District					
Mary Dawson Homestead	WPB?	YP	Normal	1930	Examination
Smith Creek	MPB	WP	Increasing	1924	Yes
Boundary Creek	MPB	WP	Increasing	1928	Yes
Crouse Creek	MPB	WP	Decreasing	1930	No
Fall & Dodge Creeks	MPB	WP	Decreasing	1929	No
Myrtle Creek	No detailed information				
Lightning Creek	MPB	WP	Decreasing	1928	No
Entire Forest	Scolytus ventralis	WF	Increasing	1930	No
" "	DF	DF	Increasing	1925	No

SILVERTHORPE N.F.

Middle Fork District	S. Budworm	WF DF E sp.	Decreasing	1927	No
Lochsa District	S. Budworm	WF E sp.	Stationary	1929?	No
Selway District	S. Budworm	WF E sp.	Stationary	1929?	No
Moose Creek District	S. Budworm	AF. E sp.	Stationary	1926	No
Moose Creek District	MPB	LP WBP	Increasing	1930	?
Bear Cr. Drainage	WPB	YP	Increasing	1930	Yes
Moose Cr. Adm. Site	WPB	YP	Increasing	1929	Yes
Bear Cr. Drainage	S. Budworm	WF E sp.	?	1928	?
Meadow Cr. District	S. Budworm	WF DF	Decreasing	1927	Yes
Meadow Cr. District	WPB	YP	Increasing	1930	Yes

ST. JOSEPH N.F.

Avery District					1930
Turner Flat	MPB	WP LP	Increasing	1930?	Control work.
Upper Palouse Drainage	MPB	WP	Normal	1930	No
Simmon's Creek	MPB	WP	Increasing	1930	Yes
Ward Peak District	Scolytus ventralis	WF	Increasing	1930	?
Gold & Quartz Cr. Drainage	?	Larch	?	1930	?

Forest Area	Host	Insect	Increasing	First	Control	
			Host	Decreasing	Reported	Recommended
<u>ABSAROKA N.F.</u>						
W. Bridger District		No infestation reported				
Snowy Mt. R. Dist. #2	DFB	DF	Stationary	1926	No	
Mill Creek	DFB	DF	Decreasing	1929	No	
Park District		No infestation reported				
S. Fork Shields River	MFB	LP	Decreasing	1930	No	
<u>BEARTOOTH N.F.</u>						
Basin Creek	MFB?	LP	Increasing	1930	No	
Stellwater District		No infestation reported				
Pryor District		No infestation reported				
<u>BEAVERHEAD N.F.</u>						
Lima District	MFB	LP	Increasing	1930	Yes	
Horse Prairie District	MFB	LP & LIMBER PINE	"	1930	No	
Jackson District	MFB	LP	Increasing	1930	No	
West & East sides Big Hole Basin	MFB	LP	Increasing	1926	No	
Wise River Drainages	MFB	LP	Decreasing?	1930	No	
Welrose District	MFB	LP	Increasing	1930	Yes	
<u>BITTERROOT N.F.</u>						
North End District	MFB	LP	Increasing	1926	No	
East Fork Bitterroot	DFB	DF	Decreasing	1924	?	
East Fork Bitterroot	MFB	LP YP WFB	Increasing	1924	No	
Rye Cr. to Grid Cr. East Side	MFB	LP YP	Increasing	1924	?	
Trapper to Canyon Cr.	MFB	LP YP	Increasing	1930	?	
Boulder Watchtower West Fork District	MFB	LP	Increasing	1925	No	
South Fork Bitterroot	MFB	LP YP	Increasing	1924	No	
Little Boulder to Overwick Fall	MFB	LP WFB	Increasing	1930	No	
<u>BLACKFOOT N.F.</u>						
Upper North Fork Dist.	DFB	DF	Normal	1930	No	
Upper North Fork Dist.	MFB	LP	Normal	1937	No	
Tally Lake District	MFB	LP	Decreasing	1930	No	
Fortine Dist. Graves & Dryocoetes Wiguam Creeks	Confusus	AF	Stationary	1930	No	
Fortine Dist. Murphy Lake	DFB	DF	Increasing	1927	Yes	
Fortine Dist. Clarence Cr.	MFB	WP	Decreasing	1930	No	
Lower N. Fork District	MFB	WP	Increasing	1928	No	
Canyon & McGinnis Crs.						
Whitefish Divide	MFB	LP	Normal	1927	No	

Forest Area	Host	Insect	Control	Decreasing:Reported	First	Increasing:
<u>CABINET N.F.</u>						
Boxon R. District	Normal	MPB	1930	No	IP	
Trout Cr. District #4	No infestation reported					
Thompson Falls Dist. #3	No infestation reported					
Plains District #2	No infestation reported					
Bend District	No infestation reported					
<u>CUSTER N.F.</u>						
Whitetail District	Decreasing	MPB	?	No	IP	
Poker Jim District	Increasing	MPB	1930	No	IP	
Otter District	Decreasing	Ips sp.	1930	No	IP	
Buffalo District Seq.	Normal	Pitch Moth	1930	No	IP	
#6 Short Pine District	No infestations reported					
Long Pines McClary & Jennings Divide	Increasing	Ips sp.	1930	No	WIP	
Skalaka District	No infestations reported					
<u>DEERLODGE N.F.</u>						
Fleecer District	Increasing	MPB	1928	No	LP	
Deerlodge District	Decreasing	MPB	1921	No	LP	
Anaconda District	Increasing	MPB	1926	No	LP	
Butte District	Increasing	MPB	1930	?	LP	
Whitetail District	Increasing	MPB	1930	?	LP	
Boulder District	Normal	MPB	1927	No?	?	
<u>FLATHEAD N.F.</u>						
So. Swan District	No infestations reported					
Upper Swan District	No infestations reported					
Coram District	Normal	DVB	1930	No	DF	
Essex District	Increasing	DVB	1930	No	DF	
Upper So. Fork Flathead	Normal	MPB	1930	No	LP	
Big River District	No infestations reported					
Krause Cr. Basin	Decreasing	MPB	1927	No	IP	
Trout Lake	Decreasing	MPB	1927	No	IP	
<u>GALLATIN N.F.</u>						
Gallatin District	Normal	MPB	1930	No	LP	
Gallatin District	Increasing	Dryocoetes confusus	1930	No	IP	
Gallatin District	Normal	Den. murrayanae	1930	No	LP	
		P. knechtels.				
Gallatin District	Decreasing	C. ponderosae	1928	No	LP	
Upper Gallatin	Decreasing	Adelges colleyi	1928	No	DF	
Lower Gallatin Dist.	Normal	MPB	1930	No	LP	
Hylite & Big Bear Drainage	Increasing	MPB	1930	Yes	LP	
#4 Yellowstone Dist.	Normal	Adelges colleyi	1930	No	DF E sp.	
Fridley Creek	Decreasing	I. Budworm	1927	No	DF E sp.	
District #5	Decreasing	Adelges colleyi	1930	No	DF E sp.	

Forest Area	: Insect	: Host	: Increasing	: First Reported	: Control Recommended
<u>HELENA N.F.</u>					
Cabin Gulch, Deep Cr.					
Sulphur Bar Dry Cr.					
Haw Gulch Drainage	S. Budworm	DF	Increasing	1924	No
Duck Cr. #3 Dry Range 1	S. Budworm	DF	Increasing	1930	Yes
Nelson District	No infestations reported				
Crow Cr. #4	MPB	LP	Normal	1930	No
Crow Cr. #4	DFB	DF	Normal	1930	No
District 5	No infestations reported				
Blackfoot District	MPB	LP	Decreasing	1922	No
Lincoln District	No infestations reported				
<u>JEFFERSON N.F.</u>					
Dry Wolf Comb Sage Cr.	MPB	YP	Increasing	1930	No
East Fork Canyon	D. confusus?	AF	Normal	1930	?
<u>KOOTENAI N.F.</u>					
Lookout Cr. Big Cr. Drainage	MPB	WP	Normal	1930	No
Big Creek	MPB	LP	Decreasing	1930	No
Rexford Dist. Dodge Cr.	MPB	LP	Increasing	1930	Yes
Bear Cr. Libby Cr.	MPB	WP	Normal	1926	Yes
O'Brien Creek	MPB	WP	Increasing	1927	Yes
McKillips Cr.	MPB	LP	Decreasing	1930?	No
McKillips Cr.	DFB	DF	Decreasing		No
<u>LEWIS & CLARK N.F.</u>					
Teton Dist. #2	No infestations reported				
Lubec District	No infestations reported				
R. District #3	No infestations reported				
<u>LOLO N.F.</u>					
Savanas District					
Twelve Mile Creek	MPB	WP	Increasing	1930?	Yes
St. Regis Dist. -Toole	Ips oregoni	YP	Decreasing	1930	No
Superior District	No infestations reported				
West Fork Fish Cr.	S. Budworm?	DF L E.sp.	Normal	1930	No
White Sand Drainage	MPB	LP	Increasing	1930	No
<u>MADISON N.F.</u>					
Ramshorn Cr. District #2	Perinea variana	DF E.sp.	Stationary	1930	No
Cascade Cr. & Vicinity	No infestations reported				
Madison River Basin	S. Budworm?	AF E.sp.	Normal?	1930	No
Madison River Basin	Needle tyer	LP	Decreasing	1934	?
Madison River Basin	Ips oregoni	LP	Stationary	1921	?
Madison River Basin	MPB	LP WBP?	Increasing	1926	Yes
Ruby District	MPB	LP WBP?	Increasing	1930	Yes

Forest Area	! Insect	! Host	: Increasing	: First Reported	: Control Recommended
<u>MISSOULA N.F.</u>					
West Fork Dist. Hdwrs. Rock Cr.	MPB	LP	Increasing	1925	No
Phillipsburg Dist.	MPB	LP	Decreasing	1925	No
Bonita District	MPB	LP	Decreasing	1928	No
Seesley Lake Draw & Trail Crs.	MPB	LP	Decreasing	1930	No
Monture District	MPB	LP	Increasing	1925	No
Cold Creek	?	LP	Normal?	1930	
Cold Cr. Belmont Boles Cr.	MPB	LP	Increasing	1930	?
Rattlesnake Creek	MPB	LP	Increasing	1929	Yes
<u>KANIKSU N.F.</u>					
Sullivan Lake Dist.	MPB	WP LP MPB	Increasing	1929	?
Upper West Branch	MPB	WP	Increasing	1928	No
Coolin District	MPB	WP	Stationary	1929	Yes
Nordman District	No infestations reported				
Beaver Cr. Drainage	MPB	WP	Increasing	1930	?
P.L. T P.A. Areas	MPB	WP	Increasing	1930	?